

Section 103(a) Rejections:

Claims 1-9, 11-29 and 31-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Swanberg et al. (U.S. Patent 5,778,443) (hereinafter "Swanberg") in view of Bean et al. (U.S. Patent 4,843,541) (hereinafter "Bean"). Applicants respectfully traverse this rejection for at least the following reasons.

The Examiner admits that Swanberg does not teach managing virtual memory in a virtual machine. The Examiner relies on Bean to teach virtual memory in a virtual machine. However, the term "virtual machine" has a different meaning in Bean than it does in Applicants' claims. It is well understood in the art that the term "virtual machine" has several distinct meanings. One known meaning in the art for the term "virtual machine" is how the term is used in Bean. As noted by the Examiner on p. 3 of the Office Action, the virtual machines in Bean refer to logical partitions of system resources that allow multiple different applications or operating systems to operate concurrently within a computer system. Another well known, yet completely different, meaning of the term "virtual machine" is the meaning used in the present application. As used by Applicants, the term "virtual machine" means an operating environment that sits on top of one or more other computer platforms, and provides the capability to run one or more processes within the virtual machine which itself is running on the one or more underlying computer platforms. Thus, an application is written and compiled to run on the virtual machine, and thus does not need to be compiled separately to run on the one or more underlying computer platforms. *See*, Applicants' specification p. 2. A Java Virtual Machine is one well known example of this type of virtual machine. It is well understood in the art that this type of virtual machine is completely different from the logical user partitions described in Bean. Note that the programs in Bean must be compiled for the architecture of the underlying hardware (Bean -- col. 1, lines 44-48). Since the logical partition virtual machines of Bean refer to a completely different type of virtual machine than in Applicants' claimed invention, the combination of Swanberg and Bean clearly does not teach or suggest Applicants' claimed invention.

Furthermore, even if a virtual machine (e.g. a Java Virtual Machine) as defined by Applicants' was run on the computer system of Swanberg, it would not teach Applicants' claimed invention. As noted above, a virtual machine is itself a process that runs on top of an underlying computer platform. The underlying platform may provide virtual memory management, such as in Swanberg. However, in the prior art, the virtual machine itself does not include a virtual memory manger, store heap and in-memory heap for processes running on the virtual machine. In the prior art, virtual machines are designed to run on top of another platform that provides lower level functionality like virtual memory management.

The rejection based on modifying Swanberg in view of Bean is further improper because the Examiner did not provide a motivation to combine the teachings of the references. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so in the prior art. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). The question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 488 (Fed. Cir. 1984). On pp. 3-4 of the Office Action, the Examiner states that it would have been obvious to modify Swanberg as taught by Bean to generate the claimed invention "for the reasons set forth above." However, the Examiner did not set forth any reasons to modify Swanberg according to Bean. On pp. 2-3 of the Office Action the Examiner merely recites his understanding of what is taught by Swanberg and what is taught by Bean. The Examiner never explains how the prior art suggests the desirability of modifying Swanberg according to Bean. The Examiner never explained why one of ordinary skill in the art would be motivated to modify Swanberg according to Bean. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness.

The rejection of claims 20 and 22 is improper because the Examiner did not provide any explanation of how the limitations of claims 20 and 22 are taught by Swanberg in view of Bean. Applicants note that the Examiner did not reject claims 10

and 12 (which include limitations similar to claims 20 and 22) under Swanberg in view of Bean.

Applicants also assert that numerous ones of the dependent claims recite further distinctions over the cited art. However, since the independent claims have been shown to be patentably distinct, a further discussion of the dependent claims is not necessary at this time.

Claims 10 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Swanberg in view of Sukegawa (U.S. Patent 5,860,083). The Examiner already admitted that Swanberg alone does not teach Applicants' claim 1. The Examiner relies on Sukegawa only in regard to the limitations of claim 10. Since the combination of Swanberg and Sukegawa has not been shown to teach or suggest claim 1, the rejection of claim 10 (which depends from claim 1) based on only Swanberg and Sukegawa is clearly improper. Furthermore, in regard to the limitations of claim 10, the flash memory cache described in Sukegawa is cache for a hard disk drive (HDD) and has nothing to do with cache lines for a virtual memory store heap and sections thereof in an in-memory heap as recited in claim 10. Similar arguments apply in regard to claim 30.

Claims 12 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Swanberg in view of Fresko et al. (U.S. Patent 5,966,702) (hereinafter "Fresko"). The Examiner already admitted that Swanberg alone does not teach Applicants' claim 1. The Examiner relies on Sukegawa only in regard to the limitations of claim 12. Since the combination of Swanberg and Fresko has not been shown to teach or suggest claim 1, the rejection of claim 10 (which depends from claim 1) based on only Swanberg and Fresko is clearly improper. Furthermore, as discussed above, even if a Java Virtual Machine was run on the system of Swanberg, it would not suggest Applicants' claimed invention.

CONCLUSION

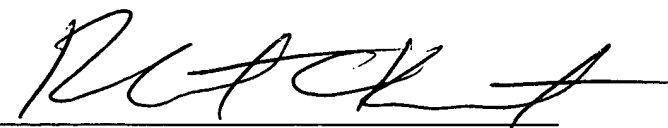
Applicants submit the application is in condition for allowance, and notice to that effect is requested.

If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above referenced application from becoming abandoned, Applicants hereby petition for such extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-49700/RCK.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Fee Authorization Form authorizing a deposit account debit in the amount of \$
for fees ().
- ☐ Other:

Respectfully submitted,



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